AREERA POW REPORT

Agriculture Research, Extension and Education Reform Act of 1998

Annual Report of Accomplishments and Results
FY 2003-2004

Northern Marianas College
Cooperative Research, Extension, and Education Service (NMC-CREES)
Commonwealth of the Northern Mariana Islands (CNMI), USA

Report: FY 2004 AREERA Report for the Northern Mariana Islands. Submitted by the Northern Marianas College Cooperative Research, Extension, and Education Service (NMC-CREES). This report represents the combined Extension and Research programs of Northern Marianas College as presented in the AREERA plan of work submitted in 1999 and subsequently revised in 2000 and 2004.

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Introduction

The Northern Marianas College-Cooperative Research, Extension and Education Service, (NMC-CREES) provides outreach education and research projects through its two programs of Agriculture Research & Extension (ARE) and Family & Consumer Sciences (FCS). With continuous interaction and a unified direction, both programs are dedicated to helping improve economic well-being, living conditions and overall quality of life within the Commonwealth of the Northern Mariana Islands (CNMI). Our key stakeholders include: farmers, families, youths, individuals, government agencies, and various ethnic communities.

The CNMI is a chain of 14 islands, north of Guam in the Western Pacific. Saipan, Tinian and Rota are the main islands in the CNMI, with Saipan being the most populated. The total land area of the three islands is approximately 118 square miles. The total CNMI population is about 60,000 with an indigenous population of 18,000, consisting of Chamorros and Carolinians. In addition, 86% of the total population speaks a language other than English. The diversity of cultures and languages creates numerous challenges for NMC-CREES. However, our programs are dedicated to serving the needs of our stakeholders despite the challenges we continue to face.

In relation to other land grant institutions, NMC-CREES is small in size, with fewer than forty employees distributed amongst the three major islands. To resolve the shortage of manpower, NMC-CREES relies on key collaborations and partnerships with government agencies, non-profit organizations and other entities throughout the CNMI and the region. Our collaboration enables us to promote our educational programs, extension services and research projects. In exchange, NMC-CREES provides collaborators with the knowledge and expertise to aid their respective organizations or agencies.

Extension services and research projects are the result of the growing needs and challenges that the CNMI community faces. These programs are also in line with the missions of the Cooperative Research, Extension and Education Service and the Northern Marianas College.

NMC-CREES programs from Agriculture Research & Extension (ARE) and Family & Consumer Sciences (FCS) include:

Programs involved in the Agriculture Research & Extension (ARE) section include:

- Aquaculture Development
- Crop Improvement
- Plant Protection
- Soil and Water Management
- Communications
- Soil and Water Quality Program

Programs under the Family and Consumer Sciences (FCS) section include:

- Food Safety and Quality
- Expanded Food and Nutrition Education Program (EFNEP)
- Nutrition, Diet and Health
- Community Resource Development
- Family Development and Resource Management
    - Parenting program
    - Limited Resource Sewing Program
- 4H Youth Development
    - Leadership and Volunteer Development

NMC-CREES focuses on the combination and integration of Research and Extension activities. Both researchers and extension agents work hand in hand to deliver a total package of information and resources that address our stakeholders' needs. Funding for many of our programs include Smith-Lever, Hatch Act appropriations and other competitive grants.

A. PLANNED PROGRAM ACCOMPLISHMENT REPORTS

Goal 1: Highly Competitive in the Global Economy

OVERVIEW

Since the inception of NMC-CREES in 1987, it has been a priority to enhance agriculture in the CNMI. Despite the continued efforts of researchers and extension agents, importation of agricultural products continues to thwart the overall improvement and development of the agriculture industry in the CNMI. In addition, the lack of quality as well as the inconsistent supply of locally grown agricultural produce continues to dissuade the development of agriculture. Furthermore, terrorism together with unpredictable port conditions and fuel costs, the CNMI's local agricultural industry continues to affect total produce availability.

To address these issues, NMC-CREES continued to strengthen collaboration with local agencies, to effectively meet the needs of stakeholders using minimal resources. In addition, NMC-CREES continued focusing on areas that will improve the marketability of agricultural products as well as the introduction of niche crops. Furthermore, NMC-CREES continued to work at improving existing programs through stakeholder input. These in turn will minimize importation, increase exportation and ultimately, stimulate the island's economy.

The NMC-CREES Programs that address Goal 1 are the Crop Improvement Program, Aquaculture Development Program, Plant Protection Program, Plant Nutrition and Soil Management Program, the Sustainable Agriculture Program and the Food Safety and Quality Program.

A. ACTIVITIES

During FY 2004, NMC-CREES focused primarily on improving the agriculture industry by conducting numerous research projects, workshops and presentations targeting the needs of commercial and noncommercial farmers. Majority of the extension and research projects conducted during FY 2004 by NMC were focused on improving the overall agricultural system production. However, programs within NMC-CREES continued to conduct one-on-one and small group training on adding value to their produce through processing and preservation.

The Crop Improvement Program and the Plant Protection Program conducted a number of vegetable trials in hopes of improving crop production in the CNMI. Crops tested include varieties of corn, tomatoes, sweet peppers and lettuce. The vegetables chosen for the trials were tested for pest and disease resistance as well as total yields of production. These trials were mostly conducted on farms in partnership with private farmers. Other projects conducted during FY 2004 focused on intercropping to minimize pest and disease damage as well as improve efficiency of land use and increase overall production.

The Plant Protection Program continued its efforts in monitoring invasive species in the CNMI. Monitoring stations are still used and maintained on Saipan, Tinian and Rota to assist researchers in their efforts to address new and persistent pests. Furthermore, pesticide applicator training and certification were conducted for both commercial and private use.

B. HIGHLIGHTS

Through workshops, training sessions, client visitations, minor publications and newsletters, NMC-CREES successfully reached thousands of clients and individuals throughout the CNMI. These activities were all successfully accomplished with the collaborative efforts of approximately 20 local agencies and organizations.

The introduction of new corn varieties increased the total corn production in the CNMI, bringing totals of profit and corn production to $100,000 or 200,000 ears of corn at harvest time. Farmers who were interviewed were very pleased with the introduction of better corn varieties, which has a high demand by consumers.

Because of the growing interest in coffee production, 3 extension agents underwent extensive training in coffee production and processing in the state of Hawaii. Upon completion of the training, agents conducted workshops for staff and farmers.

The Plant Protection Program continued its efforts in addressing the growing concern of invasive species in the CNMI. During FY 2004, equipment was purchased, through partnership with the University of Hawaii, to assist extension agents in identifying new and unidentified invasive pests in the CNMI. NMC-CREES will now able to upload pictures into the World Wide Web which would be shared with other experts throughout the region, and nationally, to reduce lag time in identifying potential or suspected pests.

C. IMPACT

NMC-CREES made significant impact in increasing production of certain crops during FY 2004. With the introduction of better crop varieties, farmers were able to increase production and reduce losses due to pest and disease damage. Favorable response of farmers and the increased production of quality produce are key indicators that NMC-CREES has successfully addressed the needs of stakeholders. More than $100,000 was generated with the newly introduced corn varieties.

Introduction of new ideas has also made significant impact during FY 2004. Efficient designs and adoption of practices that reduce labor and increase production are some areas of focus during this fiscal year. Farmers were able to reduce manpower by 40 hours just by using herbicides to control weeds. This practice was also adopted by the municipal government of Rota which reduced soil erosion and at the same time, reduce manpower by more than 100 hours per month.

D. ASSESSMENT

The CNMI continues to implement a government-wide hiring freeze because of the slow economic improvements caused by 9/11 and high fuel charges. Despite the hiring freeze that has been affecting our institution, NMC-CREES was able to address key themes within Goal 1, and remain in compliance with NMC-CREES 5 Year Plan of Work.

E. FUNDING AND FTE

FTE's: 7.25	PROGRAM COSTS: $298,026

Innovative Farming Techniques

a. In 2003 the first Sweet Corn trial of two varieties was conducted with materials from the University of Hawaii. Before the trials were conducted, some farmers tried growing varieties from the eastern USA which fell ill from the Pacific Basin strains of corn rust The two varieties were selected for resistance to several strains of Corn Rust. Varieties were successfully harvested from a replicated trial, although storm damage interfered with a valid statistical analysis. The varieties were introduced to farmers through workshops and one-on-one consultations.

b. Because of the variety trial conducted, sweet corn is now a regular item sold at local markets in Saipan. The varieties from the University of Hawaii have been adopted by over 10 commercial farmers because of its tolerance to corn rust. Supermarkets in Saipan now regularly carry Sweet Corn using the rust-resistant varieties from Hawaii. Staff of NMC-CREES have assisted Saipan farmers to contact the University of Hawaii to place orders for over 100 pounds of sweet corn seed. After harvest, this will have produced about 200,000 ears of corn worth over $100,000 retail.

c. Source of Funding: Smith-Lever, Hatch

d. Scope of Impact: State Specific

Innovative Farming Techniques

a. Farm sizes are limited in the Northern Mariana Islands to about 2 Acres per farm worker. This is largely due to the need for hand weeding of crops since herbicides, plastic mulch and machine cultivation are rarely used for weed control. The Sweet Corn trial at the Kagman Agricultural Research Station was protected from weeds by reflective plastic mulch. The mulch was added by a tractor attachment that lays plastic mulch at the rate of 3 acres an hour. The attachment can be built locally by welders from bar

steel, and pulled by a small tractor. The project was demonstrated to 30 farmers on the island of Saipan.

b. More than 5 farmers have told NMC-CREES they would like to adopt plastic mulch technology to control weeds if a local vendor could be convinced to carry the product. Two farmers have already tested the machine on their fields and laid one acre of experimental plastic. These farmers saved sixty hours per month on weeding.

c. Source of Funding: Smith-Lever, Hatch

d. Scope of Impact: State Specific

Innovative Farming Techniques

a. Commercial farmers on the island of Rota produce most of the sweet potato and taro grown in the CNMI. Weed control is a major issue, and plastic mulch and machine cultivation are not available. Researchers at NMC-CREES in 2000-2001 conducted research and demonstration trials on the use of Glyphosate herbicide (RoundUp ®) as a pre-plant weed control option.

b. A number of vegetable farmers in Rota in 2004 now regularly use RoundUp ® as a production practice to lower their labor costs. An estimated 10 farmers are applying Roundup between their crop rows of sweet potato and other crops instead controlling weeds by rotiller. This saves about 40 hours of labor per acre per month, and has reduced soil erosion by at least 10 tons per acre per year.

The island of Rota places a high value on cleanliness of the roadsides leading from the airport to the main town to keep tourist money flowing to their island. Thanks to workshops and advice from NMC-CREES, roadside weed control with Roundup ® is now a standard part of the Mayor's program. Instead of cutting the grass with gasoline-powered bush cutters every two weeks near trees and walls, these boundaries are sprayed once a month. The Mayor's Office saves at least one hundred hours of labor per month. The reduced use of bushcutters produces less carbon dioxide emissions and damage to young trees from gasoline-powered engines that would otherwise be used to trim grass along boundaries.

c. Source of Funding: Smith-Lever, Hatch

d. Scope of Impact: State Specific

Innovative Farming Techniques

a. Fields in poorly-drained areas of Saipan are thoroughly wet for several months a year, making cultivation of most crops impossible. Ridges of one to two feet height could reduce water damage by keeping part of the crop's roots above water. Farmers currently make ridges only by hand at huge labor expense, so ridging is rarely practiced though its benefits are recognized. Farm machinery researchers and agents of NMC-CREES have designed a ridge-making attachment that is pulled behind a fifteen horsepower tractor. A workshop was held on each of the islands to share the information with farmers. More than 35 farmers participated in the workshops.

b. More than ten farmers on Saipan want to test-build ridges on low-lying fields if tractor power was available to pull the ridger. Two farmers tested this ridger in their commercial fields in 2004 and were very satisfied with the ridges made. These farmers were able to grow crops during periods of flooding that otherwise would have been forced to fallow the fields. They were able to produce at least $2,000 of vegetables during the heaviest periods of monsoon rain instead of only a fallow with no production.

c. Source of Funding: Smith-Lever, Hatch

d. Scope of Impact: State Specific

Innovative Farming Techniques

a. In 2003 a Scientist from NMC-CREES conducted trials with lava rock fertilizer with a farmer in the As Lito area of Saipan. During this trial the Scientist introduced the use of plastic mulch to contain water in a field-hydroponic trial of Vegetative Sweet Potato (Kangkung. ***Ipomoea aquatica***). This is a popular vegetable among the majority residents of Saipan as well as Asian migrant workers who eat stir-fry greens daily. The farmer adopted the use of polyethylene plastic film to grow this green leafy vegetable. Furthermore, he adapted plasticulture-based hydroponics so nearly one quarter of his 2 acres is under Vegetative Sweet Potato rotation. After a year of growing the hydroponic crop on a fraction of his land, he rotates tomatoes there, followed after six months by mustard or cabbage greens.

b. This technique has made this farmer one of the most dependable suppliers of quality Vegetative Sweet Potato (Kangkung) in Saipan. He harvests up to 25% more yield more the field. He sells more than one thousand dollars per month of kangkung, so the increased yield from hydroponics nets him at least four thousand dollars a year.

c. Source of Funding: Smith-Lever

d. Scope of Impact: State Specific

Agricultural Profitability

a. Commercial pesticides are not readily available in the CNMI due to excessive shipping charges, local taxes and duties imposed by the CNMI government. In order to assist farmers in dealing with the lack of commercial pesticides, NMC-CREES focused efforts in introducing botanical pesticides as an alternative to commercial pesticides. Farmers were informed through workshops and trainings as well as one-on-one consultations.

b. As result, 5 farmers continue to use Neem and Chinaberry extracts as botanical pesticides. By using botanical pesticides extracted from Neem, Chinaberry and Curry Leaf trees, farmers are saving money by significantly reducing, if not eliminating the need for commercial pesticides.

c. Source of Funding: Smith-Lever

d. Scope of Impact: State Specific

Adding Value to Agricultural Products

a. Based on global sources of information and services, the Food Safety and Quality Program conducted a series of workshops on sourcing and designing of packaging materials, design and development of packaging labels, and registering and obtaining of Universal Product Code (UPC) under the US Bar Coding Council. More than 30 individuals attended the workshops on all three islands.

b. Because of the introduction of bar codes, farmers and processors were able to better manage inventory and at the same time, satisfy vendors/buyers who use bar codes for all their store items.

c. Source of Funding: Smith-Lever, USDA National Integrated Food Safety Initiative

d. Scope of Impact: State Specific

Goal 2: A Safe and Secure Food and Fiber System

OVERVIEW

FY 2004 saw the need for aggressive on-going educational campaign to increase awareness and develop specialized skills in the areas of food sanitation and safety measures, proper handling procedures of foods, basic food microbiology, factors that affect the quality of foods, processing and preservation techniques, and increase productivity to enhance self reliance in foods. In addition, availability of fresh fruits and vegetables continues to be problematic. During FY 2004, the CNMI was hit by 3 typhoons within a 2-month period. Although NMC CREES has introduced numerous preservation techniques in the past, it is necessary to continue exploring and introducing new preservation techniques to our farmers.

With less availability of fresh fruits and vegetables due to natural disasters and other external factors, imported produce continue to flourish in the CNMI. It is evident that backyard farming/gardening remains an important concept that must be continuously promoted in the community.

A. ACTIVITIES

The Food Safety and Quality (FSQ) Program of NMC-CREES conducted more research and staged hands-on practical workshops to food processors and food caterers, to restaurant workers, to community kitchens, and to people who are involved in food preparation. These workshops were conducted on all of the three major islands. In addition, there were extension and outreach services provided to food processors and community kitchens. There were also demonstrations and presentations to specific groups of farmers and to single mothers and low-income families.

The FSQ Program conducted basic and applied research on alternative food processing techniques that were easily developed and gradually transferred to local processors. Different high temperatures applied to different crops based on their texture, sugar and starch contents, and different thinness in slices of chips were tested to determine most suitable processing techniques for a variety of crops such as taro, sweet-potato, cassava, banana, and yam. Furthermore, basic research was also conducted on using of post harvest biology and technology to prolong the shelf life of fresh fruits and vegetables.

The Food Safety and Quality section directly involved in continuous outreach educational activities to low income families by teaching them on proper sanitation measures, safe handling procedures and choosing of foods that are rich in dietary fiber and healthy to consume.

B. HIGHLIGHTS

The research project focused on the introduction of alternative food processing techniques was very successful on the basis that farmers and processors were able to expand products processed using the same vegetable or fruit crop. The outcome was outstanding. Meanwhile, there are more local chips that are now selling in local stores than ever before. These methods provided farmers with extra skills on preventing loss of moisture and nutrient content, as well as bacterial and rotting damage after harvesting. Also, with the use of low temperature and ethylene absorbing sachets, farmers were able to control rapid deterioration of products and ethylene damage.

Because of the efforts of the FQP section, food borne illness have reduced. Foods are properly prepared and consumed within the recommended time frame of 2 hours or less while stored in room temperature. Evidence has shown that food caterers are serving food when hot, or else these food are packed in clean sterilized containers to prevent from pests such as flies and roaches and stored in cool temperature. There are more people who are aware of the risks of contaminating cooked foods. More people are now aware of the danger of bacterium such as Salmonella, E-Coli, Listeria, Botulism, Vibrio, and so on. With the awareness campaign, it made the food processors and caterers to become more vigilant about the preparation procedures.

There were more hands-on practical workshops in 2004 than in previous years. That has triggered more basic research activities on different uses of local foods. It subsequently created much higher demand from the farmers, the food processors, the food caterers and consumers. The certification program for food operators, managers, and employees was also an on-going program.

C. IMPACT

With previous clients and new entrants, the FSQ section was able to teach and assist 435 individuals in the areas of basic food microbiology, processing and preservation, and post harvest biology. Some of these individuals are regular clients/ customers that have already been reported in the 2003 AREERA Report, however, the Program was able to keep their interest in learning new concepts and techniques.

With the high success rate on basic research for methods and techniques of post harvest handling, preparation, processing, preservation, packaging, labeling, bar coding and marketing, they all reflected on astronomical impacts. These impacts reflected on more agricultural crops being produced, processed and marketed both locally and to the neighboring island of Guam.

There was roughly 6,000 lbs of hot pepper that were processed, packaged and marketed on monthly basis, 7,000 lbs of sweet potato a month that was processed into chips and marketed, and 8,000 lbs of local fruits such as pineapple and papaya that were processed into fruit jams. In addition, there was roughly 3,000 lbs of fruits a month that was processed into juices. Those fruits were Star Apple, Noni, Pineapple, and local citrus. In

overall, there was roughly $40,000 *($480,000 per annum*) of revenue earned in every month from local raw agricultural foods. That revenue source is expected to increase tremendously as more farmers are now interested in adding additional value to their raw materials.

In FY 2004, 6 new investors were interested in food processing and therefore invested a large amount of money in procurement of processing equipment and setting up of processing facilities. There were 2 in Rota, 3 in Saipan, and 1 in Tinian.

In local stores through out CNMI, there are rice cake, goyuria, hot pepper paste and sauce, chips, jams, Noni juices, fruit juices, and pickles being processed and marketed by the workshop participants. Most of them are home owned family small-scale processors. They regularly called NMC-CREES for assistance in perfecting and ensuring that the processing method is done right in the proper procedure.

D. ASSESSMENT

There were some changes introduced which was based on the needs of the community, however, the program was focused primarily on food safety, maintaining of natural quality of foods, prevention of food borne epidemic, handling and preparation procedures, and the ability of local consumers to buy local foods that are healthy and affordable. This was a real challenge because most of local processors were only high school graduates. Overall, NMC-CREES was able to address themes within Goal 2 and remain in compliance with its 5 Year Plan of Work.

E. FUNDING AND FTE

FTE's: 4.5	PROGRAM COSTS: $171,273

Food Handling

a. FCS extension agents provided training to local residents and food business owners on outbreak prevention, and the proper cleaning and handling techniques of food before, during and after the processing procedure of all foods such as raw fish, meat, fruits and vegetables.

b. As a result, more than 65% of the participants have put their newly gained into practice. Owners of businesses were also participated at the workshops indicating an increase of interest of improving their facilities. The end result will prevent losses, damages, and cross contamination.

c. Source of Funding: Smith–Lever, USDA National Integrated Food Safety Initiative

d. Scope of Works: State Specific

Food Quality

a. Food Quality was a challenge as farmers and processors were dealing with appearance both external and internal, the texture of the products, the effort to maintain natural flavor (taste and smell), safety to consume, and the nutritional value. Training Effort was made to test fruits and vegetables using different temperatures and time frame for blanching and thereafter immersed in ice cold water for Ice Bath. This process has helped to maintain color, micronutrients, and improve the texture.

b. The training has attracted about 85% of local farmers in CNMI. They were able to understand why fast cooking of vegetable and fruits are important to restore the water soluble vitamins C, and B vitamins and not destroying the micronutrients. At the same time, it helped to control textural changes and enhances glossy appearances while stabilizing the color of fruits and vegetables.

c. Source of Funding : Smith – Lever, USDA National Integrated Food Safety Initiative;

d. Scope of Works: State Specific

Food Quality

a. Based on more researches, farmers and processors were taught on methods to slow down crop losses during crop respiration and transpiration, to slow down the deterioration process, and to slow down degrading of quality.

b. Farmers and processors were also taught about damages caused by ethylene gas, and enzymatic reaction after harvesting and during processing. The inactivation of responsible enzymes that causes off flavor, textural changes, color changes, nutritional changes and development of oxidative browning was the highlight of the activity to maintain quality. 90% of small farmers and processors now better understand the reasons why enzyme inactivation is so important in maintaining food quality.

c. Source of Funding: Smith-Lever

d. Scope of the Work: State Specific

Food Security

a. The program aims to help low-income families to improve islands-wide food security through rapid increases in food production and productivity, and by improving access to safe and wholesome food.

   The CNMI people, at all times, should have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. This is the challenge. With the high reliance on imported foods, NMC-CREES together with the Department of Land and Natural Resources have worked diligently to develop new market opportunities for local farmers.

b. More opportunities for local farmers will enhance sustainability in productivity. That will allow farmers to grow more so that CNMI does not have to rely on imported foods. The NMC-CREES program has continued to produce plant seedlings hoping to increase production by farmers. The nursery seedlings are sold to farmers at very low price. The local farmers market (*SABALU*) is open every Saturdays and varieties of fruits and vegetables are being marketed.

c. Source of Funds: Smith lever

d. Scope of Work: State Specific

Food Safety

a. The alarming rate of contamination and concerns on foodborne illnesses has raised the need for on-going training programs on food safety. Training activities were conducted on all three islands of Tinian, Rota, and Saipan. These training programs emphasized the three rules of Food Safety: Keep it Clean,: Keep it cold,: and Keep it hot: Participants were taught about the important to keep food out of the temperature danger zone.

b. Participants were also taught of food pathogens that cause spoilage and damage. It was noted that almost 100% of all food processors and caterers have introduced and applied strict measures of safety in food preparation at their processing facilities.

c. Source of Funding: Smith-Lever, USDA National Integrated Food Safety Initiative;

d. Scope of the Work: State Specific

Food Safety

a. The focus was on children and youth who are at risk of cross contamination, using of unclean surfaces and facilities to make sandwiches, and the proper methods of hand washing. Proper demonstrations were conducted at Head Start and Elementary schools teaching the kids on hygiene particularly on hand washing. Kids were also taught to keep hands out of the mouth and nose, and avoid nail biting and nose picking.

b. Children were given soap and water to demonstrate the proper way of washing hands thoroughly and dry with clean towels or paper towels.

c. Scope of Funding: Smith Lever;

d. Scope of Work : State Specific

Food borne Illness

a. The major concern on foodborne illnesses is the lack of a facility to rapidly detect and identify an outbreak, its cause and where was it originated. Neither the NMC-CREES, nor the Department of Public Health does have a laboratory facility to quickly identify a pathogenic germ and what the causes are. Based on this shortfall, our training programs have always emphasized the importance of sanitation, sterilization, blanching, dehydration, and pasteurization.

b. All of the food processors are now aware of the fact that bacteria exist in everywhere, bacteria has optimal requirements for growth, their sources and symptoms and conditions for bacteria to grow increasingly. By understanding these factors will help the farmers and food processors to prevent infections and contaminations. *Botulinum, Campelobacter jejuni, E-Coli, Yersinia enterolitica, vibrio, Literia monocytogenes, Samonella, Bacillus cereus*, and *staphylococcus aureus* were focused on although there was no real facility available for proper demonstrations.

   Extension and educational presentations also covered the procedures for controlling the bacteria and the symptoms when suffering from food borne illnesses. e.g diarrhea, nausea, vomiting, dehydration, and abdominal cramps.

c. Source of Funds : Smith-Lever, USDA National Integrated Food Safety Initiative

d. Scope of the Work: State Specific

HACCP

a. Under the HAACP program, there were 6 new facilities that have undertaken major improvements to ensure cleanliness, hygiene, and physically fit for

processing and preparation of foods. Auditing of these facilities are conducted regularly by the Department of Public Health and with the assistance of NMC-CREES. A number of Standard Operating Procedures were developed and now put into actual practice.

b. The major challenge for CNMI on HACCP is the lack of good practice and good HACCP plan. There is a need to focus on a good practice method to ensure safety. The good news is that CNMI processing does not involve high protein foods such as meat and fish. That would have been a different approach all together.

c. Source of Funds : Smith-Lever

d. Scope of Work : State Specific

Food Accessibility

a. It is evident that the entire population has access to different kinds of foods at different time intervals. The challenge is to continue to educate the vulnerable population to choose a healthier food choice. The younger generation and middle-aged group do have the high demand for salty, oily and high sugar content foods. Their preference for high fiber and nutritious fruits and vegetables is very low. More training were conducted regularly to youth and young children at school area and at community places educating them on making a better access to healthier foods. It is the changing of the taste preferences and consumption behavior that matters the most.

b. An ongoing program on container and backyard gardening are also conducted on all three islands. The program is to educate the kids to better understand how the food chain works, and why food security is so vital in global development.

c. Source of Funds: Hatch, Smith- Lever

d. Scope of Work : State Specific

Goal 3. A Healthy, Well-Nourished Population

OVERVIEW

The rate of obesity is disproportionately high among Pacific Islanders and is a significant social and financial burden. According to the CNMI Department of Public Health, thirty percent (30%) of children up to age fifteen are diagnosed as overweight or obese. That number increases to around forty percent (40%) for fifteen- to nineteen - year olds. These statistics have remained steady for the past few years. Research shows that obesity is a risk factor for many non-communicable diseases such as Type II Diabetes. In fact, the indigenous Chamorros and Carolinians of the Commonwealth of the Northern Mariana Islands (CNMI) rank third in the world among adult populations with Type 2 Diabetes; only the Pima Indians and the people of the Pacific island nation of Nauru rank higher *(source: World Health Organization).* Moreover, a significant percentage of the indigenous population suffers from severe diseases related to diabetes and diabetic complications.

Evaluations of program participants' 24-hour recall continue to indicate low consumption of fruits, vegetables and whole grain foods. In addition, the Department of Public Health has noticed an increase in young children with risk factors for Type II Diabetes. Despite the efforts of the Public School System to enforce a strict nutrition policy banning high-fat and high-sugar snacks on campus, one in three children continue to be overweight or obese by BMI. There is a desperate need for physical activity and nutrition education in the schools and the home.

A. ACTIVITIES

In order to address the rise in obesity, especially among young children and low-income families, extension agents went on a campaign to promote healthy food and lifestyle choices. Activities focused on encouraging families to take care of their health together. The presentation "Where's the Fat and Sugar?", for instance, visualizes amounts of fat and sugar in commonly eaten foods and demonstrates healthier alternatives through food samples and displays. Furthermore, Head Start parents and food stamp recipients enrolled in an eight-hour long program intended to increase nutrition knowledge as well as to improve diets and nutritional welfare for the entire family.

In addition to working with low-income families, program staff conducted a variety of training for teachers in the CNMI and around the pacific region during the Head Start Outer Pacific Conference. Since teachers spend most of the day with the children, they can promote nutrition and healthy eating throughout the day as part of the curriculum. Educators were trained the basics of child nutrition and nutrition integration in the classroom.

During the summer, nutrition program staff served as mentors to high school students who interned with the nutrition program. In order to prepare students for a career in Nutrition Education, they were taught nutrition basics, communicating with culturally diverse audiences, and food preparation techniques.

B. HIGHLIGHTS

Our programs, with the help of many internal and external collaborators, have assisted thousands of people throughout the CNMI. Our internal collaboration with agriculture and family development programs has enabled us to approach our clients holistically by bringing the family together.

Participants of our nutrition workshops have put into practice what they have learned. During follow-up client visits many of them are preparing healthy meals. Due to the success of the program, the CNMI Head Start program has implemented nutrition programs for parents.

Moreover, the Head Start program relies heavily on nutrition staff to conduct training for the teachers and aides. The success of previous training has helped establish CREES as one of the vital professional development resources for Head Start. Teachers and aides incorporate nutrition topics into their everyday curriculum.

C. IMPACT

The nutrition education efforts have greatly impacted our clients. Participants enrolled in the Food and Nutrition Education Program have learned to make informed decisions regarding food choices, meal planning, food preparation, and resource management. According to the EFNEP Evaluation/Reporting Software, 90% of adult participants showed improvement in one or more nutrition practices, such as planning meals and making healthy food choices. In addition, 79% of youth participants improved their nutrition knowledge as a result of EFNEP lessons.

The success of our outreach would not be possible without the collaboration efforts between FCS and Agriculture Research and Extension and various external partners. Moreover, stakeholders increased their clientele numbers as a result of our collaborative efforts. Evaluation results from stakeholders show that CREES programs are appropriate for their clientele and program needs. Memorandums of Understanding secure the relationship and the collaborative efforts between CREES and its stakeholders.

D. ASSESSMENT

All Family and Consumer Science and Agriculture Research and Extension activities are in line with the FCS Plan of Work. There were some changes that needed to be made to adapt to the changing needs of the community. For instance, with the increasing rates of Obesity and Type II Diabetes, all programs have redirected their focus to address this

alarming concern. Furthermore, various activities in the Plan of Work had to be placed in a different year because of staff turnover.

E. FUNDING AND FTE

FTE's: 4.5	PROGRAM COSTS: $140,444

Human Nutrition

a. The "Where's the Fat and Sugars" project continues to help audiences, particularly parents and children, conceptualize how much fat and sugar is in their favorite foods. The goal of the project is to teach people to choose healthier foods by reading the nutrition facts. The presentations were held in a variety of settings including public schools PTA meetings, health fairs, and other community events.

b. Based on evaluation reports, roughly 40% of parents have reduced their soda intake and replaced it with diet soda or water. Additionally, these parents have learned to use the nutrition facts to shop for healthier foods.

c. Source of Funding: Smith-Lever

d. Scope of Impact: State Specific

Human Nutrition

a. The Nutrition Education Programs help families with children and food stamp recipients eat a healthier diet on a limited budget. Skills learned in the program help clients gain confidence in themselves and their abilities. Lessons are taught individually or in group settings.

b. Evaluation results show that at entry into the program, 22% of clients demonstrated acceptable food resource management practices (such as comparing food prices, does not run out of food, plan meals, etc.) and 7% of clients demonstrated acceptable nutrition practices (such as making healthy food choices, reading the nutrition label, etc.). However, upon completion of the program, 48% demonstrated acceptable food resource management practices and 26% demonstrated acceptable nutrition practices.

c. Source of Funding: Smith-Lever

d. Scope of Impact: State Specific

Human Nutrition

a. During the summer, we offered the 'Nutrition in the Classroom' workshop to Head Start teachers from around the pacific region. Activities focused on integrating nutrition topics (focusing on young children's nutrition needs) into the lesson plan. Hands-on activities helped to reinforce this concept.

b. A follow-up survey shows that 35% of participants are integrating nutrition into the curriculum. Some teachers are using meal times as another opportunity to teach students about healthy eating.

c. Source of Funding: Smith-Lever

d. Scope of Impact: State Specific

Goal 4: Greater Harmony Between Agriculture and the Environment

OVERVIEW

As we strive to support and encourage our local people in their agricultural endeavors, it is our duty to ensure that we minimize any negative impacts to our sensitive island ecosystems. Furthermore, it is our goal to encourage the wise use, protection and nurturing of our island's limited natural resources. Only then can we expect to maintain fertile soils, a balanced and healthy ecosystem, an abundant and clean water supply and high agricultural productivity.

A. ACTIVITIES

Piggeries received a great amount of focus this year as agents promoted the Dry Litter Waste Management System for Hogs which encourages the use of the hog waste and combined carbon materials as Compost/fertilizers to increase agricultural productivity in fields and thus increase profits, reducing the overall cost of production. Simultaneously, Water consumption in the piggery is drastically reduced which in turn further reduces the overall cost of production and virtually eliminates the leaching of excess nutrients into ground and surface water resources.

The Integrated Pest Management program has implemented many programs this year to include the Melon Fly Suppression program, Best Management Practices for the suppression of the Sweet Potatoe Weevil, the introduction of Biocontrols to suppress and hopefully eradicate the Scarlet Gourd (*Coccinia grandis*) and *Masigsig* (*Cromoleana ordata*). Agents have also made great progress in certifying and training collaborators who will make up the plant bio-security network within the Northern Marianas to detect and deter the introduction of alien species into the CNMI.

Under the Soil and Water Conservation Program, community members have received training and support for the implementation of programs such as composting of biodegradable materials to be used as a fertilizer and soil amendment. Pasture Management and Best Management Practices for erosion control were also a major focus of this years Soil and Water team.

Agents have continued to promote the planting of forest crops such as Da'ok (*Calophyllum inophyllum L.)* and Noni (*Morinda citrofolia L.)* and the processing of their fruits as a viable industry for the CNMI farmers and marketers. Agents have produced and distributed seedlings and provided trainings to encourage such endeavors.

Extension Agents continued to provide Pesticide Applicator Training in collaboration with the Division of Environmental Quality and municipal governments. Extension agents conducted smaller workshops for individuals, to assist them with specific areas as part our efforts to ensure that all applicators are knowledgeable of proper rates and application techniques. Extension agents have found that the language barrier or

difference has been a major contributor in the large number of individuals who did not pass the certification during previous years.

B. HIGHLIGHTS

In order to suppress specific invasive plant species in the CNMI, parasitic weevils and gall forming flies were released in specific areas for preliminary observations and to record. The project was in collaboration with the University of Guam and the Department of Lands and Natural Resources. Support was extended and investigations were initiated into the introduction of parasitoids of the gourd.

On September, Gall flies were released on Rota in an effort to suppress the pasture pest *Masigsig* (*Cromoleana ordata*). This species is highly invasive and has become a inhibitor to both crop production and livestock production. This project was made in collaboration with Dr. Muniappan from the University of Guam. It is expected that more of these gall flies will be released on Rota and Tinian in 2005

9 individuals (6 DLNR, Extension agents & Quarantine staff & 3 Rota Resort staff) were certified as First Detectors for Plant Bio-security Program. This is an important first step in ensuring that no more unwanted invasive species arrive on Rota. This certification training will be brought to Tinian and Saipan in 2005.

As part of the Plant Protection Program's efforts, numerous propagated neem and chinaberry plants were distributed to farmers. More than 100 plants have been distributed to farmers in the CNMI. Additional highlights of the Plant Protection Program include the establishment of 5 monitoring stations, on each of the three major islands, to map population patterns, and to identify new invasive species.

C. IMPACT

As a result of certifying agents and the setting up of the plant bio-security program on Rota, agents have taken a proactive role in ensuring that the agricultural potential of the island remains strong and is protected against foreign invaders.

Farmers have begun growing biological pesticides on their farms to reduce the use of commercial pesticides. More than 15% of farmers in the CNMI have switched to biological pesticides.

In addition, farmers began building compost bins on their farms as an alternative to excessive fertilizer applications. This will minimize dependence of commercial fertilizers. In addition, by using fish and livestock waste, farmers will further decrease use of commercial fertilizers. Farmers have increased their productivity to include both fish and vegetables.

D. ASSESSMENT

Due to continued hiring freezes at Northern Marianas College, programs and projects were somewhat hampered from making more impact in terms of Goal 4. Overall, NMC-CREES successfully met Goal 4 requirements.

E. FUNDING AND FTE

FTE's: 6.5	PROGRAM COSTS: $230,184

Agriculture Waste Management

a. Since the arrival of the Spanish here in the Marianas, the people of the CNMI have raised hogs for food, particularly during family gatherings, fiestas or just simply for family consumption. Thus, raising hogs is an important cultural tradition for these people. This results in a large number of small piggeries throughout the CNMI, at any given time. Unfortunately, hog farmers almost exclusively use the conventional spray-out system of waste management which requires copious amounts of water and adds to the probability of leaching of excess nutrients past the soil and beyond to the drinking water aquifers or into the nearest stream. This year, agents have set up piggery demonstrations to promote the Dry Litter Waste Management system for Hogs to include rain water catchments. This system reduces the use of water and leaching of nutrient to almost zero. Furthermore, hog waste is automatically combined with carbon materials (the chips-usually wood or coconut husk) to be periodically collected and composted. This valuable compost is important in increasing soil fertility and decreasing the overall cost of agricultural crop production as commercial fertilizers are hard to come by and expensive.

b. As a result of workshops and demonstrations on Tinian, Rota and Saipan, at least 7 farmers have implemented the Dry Litter Waste Management for hogs. Farmers have reported reduced costs due to the reduction of labor, time and water used on hog waste management. Farmer also reported happier hogs, reduction in feed costs, greatly reduced odor and increased crop production with the application of compost.

c. Source of Funding: Smith-Lever, EPA

d. Scope of Impact: State Specific

Water Quality

a. Probably the most heavily-trafficked, environmentally-sensitive area in Saipan is the shoreline above high-tide line by the Beach Road bike path. A project funded from the Governor's Office was began in 2004 to improve the environment near

Beach Road in Garapan. This project, Beach RAMP, requested technical assistance from NMC-CREES to help stabilize the near-shore waterfront in this area.

A Scientist from NMC-CREES worked with four staff from Beach RAMP to produce nursery-grown seedlings of salt-water tolerant Dwarf Bermudagrass (***Cynodon dactylon***). About three-thousand seedlings were grown at a nursery built behind the Beach RAMP office, then transplanted near the Thirteen Fishermen Monument on Beach Road.

b. Seedlings have become established on an area of about two-thousand square feet. It is expected that the area will be completely covered in 2005. With the additional ground cover, erosion will be minimized significantly.

c. Source of Funding: Smith-Lever

d. Scope of Impact: State Specific

Water Quality

a. In Collaboration with the United States Geological Survey (USGS), United States Environmental Protection Agency (USEPA), and the Cooperative State Research, Education and Extension Service (CSREES)-National Water Quality Program, agents set up demonstrations to promote the Dry Litter Waste Management for Hogs to include Rain Catchments. This system drastically reduces the need for water for spraying out of pig pens and therefore greatly reduces the risk of the leaching of excess nutrients into the ground and surface water resources.

b. 5 farmers have implemented the Dry Litter Waste Management system and have noted a great reduction of water used, reduced odor, decreased labor, decreased feed costs and increased happiness of the animals. This has intrinsically reduced the leaching of nutrients from hog waste into ground and surface water resources while improving the productivity of soils receiving the application of compost as derived from the waste management system.

c. Source of Funding: Smith-Lever, EPA

d. Scope of Impact: State Specific

Biodiversity

a. Grass pastures are the best method to reduce soil erosion on erodible lands. The area of Cowtown Marpi on the north end of Saipan holds the largest acreage of ranches with fragile soils without irrigation next to the unpolluted waters off Wing Beach and Banzai Cliff. If this land was converted to non-irrigated row crops, erosion would invariably increase soil runoff into surrounding waters.

A Scientist of NMC-CREES conducted variety trials of three improved forages with the most advanced rancher on Saipan in 2001-2004. Two of the forages were obtained from the most advanced rancher on Rota, and propagated at the NMC-CREES Nursery on Saipan: Stargrass (***Cynodon nlemfuensis***) and Pangolagrass (***Digitatia decumbens***). A third came from the USDA-NRCS of Saipan: Mott Grass (Dwarf Elephant Grass; Napier Grass (***Pennisetum purpurem***)). In 2004 this rancher increased the size of his planting of Mott Grass by planting an additional 4,000 cuttings into one acre. It is being maintained for breeding stock for planting on additional areas of his ranch. NMC-CREES supplied an additional three hundred cuttings of Mott Grass this rancher used in a separate area of his ranch.

b. This Saipan rancher increased the area of these forages several-hundred times above the material he received from NMC-CREES so the area of breeding material now exceeds 10 acres.

c. Source of Funding: Smith-Lever

d. Scope of Impact: State Specific

Forest Crops

a. The CNMI is geographically located in an area that receives numerous typhoons each year. Often times, even the passing of a small storm can destroy whole plots of bananas or other crops that are prone to wind damage. Trees such as Da'ok (*Calophyllum inophyllum L.)* have been promoted as a windbreak as well as for the production of it's fruits which can be harvested for the extraction of it's valuable oils. Farmers have also gone so far as to plant their whole properties with the Da'ok tree. Another valuable Forest-Crop here in the CNMI is the Noni tree (*Morinda citrofolia L.).* Noni has been used in the Marianas traditionally as a medicine and has been recently recognized across the globe for it's medicinal value. In promoting and encouraging the production of Noni and Da'ok, agents have conducted workshops on agricultural production of Noni and Da'ok and on the processing of their fruits. The extractions from both plants have been tested and analyzed and it has been noted that the quality of the fruit grown here in the CNMI is of a very high quality. Furthermore, agents have assisted farmers with the production of Da'ok and Noni seedlings as typhoons greatly reduced the availability of seeds.

b. In this past year, farmers on Tinian, Rota and Saipan have planted thousands of Noni and Da'ok trees and many have begun to process their fruits for to be sold in the form of oils, juices and pills.

c. Source of Funding: Smith-Lever

d. Scope of Impact: State Specific

Biological Control

a. NMC-CREES staff are at present demonstrating the use of GF120 a protein bait with a biocide (*spinosad*) for the control of both male and female melon fly's (*Bactrocera cucurbitae*) in the field. The GF120 was provided through our collaborators at the Pacific Basin Agricultural Research Center (BPARC) at Hilo, Hawaii. Farmers were taught how to make their own melon fly traps using used water bottles and have begun to use the traps to collect, and therefore suppress, the melon flies populations around their farms

b. 10 farmers on Rota have been involved in the melon fly suppression program and have observed decreased damage to crops due to the melon fly.

c. Source of Funding: Smith-Lever

d. Scope of Impact: State Specific

Integrated Pest Management

a. Sweet potato is one of the most important crops for farmers on Rota. Farmers were educated by extension agents on the Best Management Practices for the control/suppression of the Sweet Potato weevil. This includes the use of traps, alternative pesticides, dipping of cuttings, soil ridging and sanitation in the fields. Furthermore, has been the goal of extension agents in the CNMI to promote alternative methods on how to control pests without the use of chemicals. For example, farmers have been encouraged to use Neem, soap, hot pepper, garlic, and oil as low cost alternatives to chemical sprays.

b. 12 farmers are now actively using BMP's for the control of the Sweet Potato weevils and have noted major decreases in the amount of damaged produce due to the pest.

c. Source of Funding: Smith-Lever, Hatch

d. Scope of Impact: State Specific

Goal 5: Enhanced Economic Opportunity and Quality of Life

OVERVIEW

The Northern Marianas College CREES programs have worked hard to empower CNMI youths, families, and limited resource individuals in order to address the economic and social challenges they face. Proper use of farming equipment, youth at risk, financial independence and assistance for the elderly continue to be issues in the CNMI.

The Family and Consumer Science and Agriculture Research and Extension programs that address the health needs of families, individuals and youth in the CNMI are the 4-H Program, Family Development and Resource Management Program, Community Resource Development Program (CRD) and Farm Safety Programs.

A. ACTIVITIES

During FY2004, FCS and ARE faculty and staff worked collaboratively to address the economic and social needs of our stakeholders and the community. Numerous workshops and training sessions in the areas of farm safety, youth development, money management, and sewing were conducted. News releases and the traditional word of mouth approach on economic programs, practices, workshops and training were used to attract interested individuals and the general public.

The Farm Safety Program conducted various workshops on equipment safety and proper use of protective gear during pesticide application. More than 50 farmers from the islands of Saipan, Tinian and Rota participated in these workshops.

NMC-CREES conducted a number of activities in order to address youth development. In collaboration with the Saipan Agricultural Fair Association and the Department of Lands and Natural Resources, the 4-H Program held its annual Youth Agricultural Fair in conjunction with the Saipan Agricultural Fair in hopes of promoting agriculture amongst youth in the CNMI. More than 13 participants attended last year's agriculture fair. Aside from the agricultural fair, 4-H also held its annual summer youth programs known as Camp Life and Project Life.

Community Resource Development Program (CRD) conducted numerous workshops addressing the needs of adults, youths and senior citizens ranging from financial management to medical and legal rights of a senior citizen. All of the workshops were held in formal and informal settings to meet the needs of clients.

B. HIGHLIGHTS

Through our collaboration with partners, NMC-CREES programs reached over 4,000 families, individuals and youth throughout the CNMI. Individuals were reached both directly and indirectly through workshops, presentations, trainings and one-on-one

consultations. As a result of the various outreach activities we conducted, more than 500 individuals (adults and youth) were positively affected by our efforts.

In Camp Life the kids learned team building, money management, and foreign language, and they explored their creativity in arts and crafts. In Project Life, participants learned about leadership, personal and professional development and were able build new relationships with other youth in the CNMI. After talking with the kids, 100% of the kids said they would return next year.

The 4-H Program held its annual Summer Youth Program, in collaboration with the Community Development Institute and the Small Business Development Center. Two sections were formed based on age group. More than 80 students participated in the program on Saipan, Tinian and Rota.

C. IMPACT

NMC-CREES successfully reached clients and the general community by increasing their knowledge in money management, sewing and other aspects of day-to-day life. Within the Sewing Program, 100% of the individuals enrolled in the beginning classes purchased their own sewing machines and are now able to sew clothing for their families. Youths learned about the importance of managing money and the importance of setting short and long term goals. Senior citizens were given the opportunity to gain some independence and were made aware of the different rights they had in terms of medical and legal services.

D. ASSESSMENT

NMC-CREES continues to suffer from personnel shortfalls due to hiring freezes within the institution. However, despite the lingering issues, NMC-CREES was able to address Goal 4 during FY2004.

E. FUNDING AND FTE

FTE's: 6.25	PROGRAM COSTS: $212,757

Consumer Managment

a. The Family Financial Management Mini-Workshops focused on budgeting of food stamps and how to properly manage Social Security benefits so that it is easier for the caregiver to prepare and submit an accurate report. Furthermore, participants were taught on ways to track their spending. One that is very simple is to keep a notebook and write down where every penny goes to: from buying chewing gum to paying utility bills. Another approach that majority of the participants decided to do is to keep all their receipts in a plastic bag or shoe box.

Majority also preferred to do a bi-weekly budget plan. The participants were then tasked to record all their income; from salary, bake sales, garage sale, gifts/cash and public assistance whether for power, housing or food stamps. The participants then developed short term and long term budgets and savings plans based on knowledge gained during practice activities with their group. The workshops conducted were very informal and were held mostly in the Aging Program Conference Room. Some were conducted in the Villages Social Hall. Four hundred twenty two (422) adults attended Family Financial Management Mini Workshops.

b. The end of every workshop evaluations showed that 100% would like to start a budgets and savings plans. 100% of the participants learned the importance of tracking spending. 100% put them put into application for the first three months. 40% claimed that there were days and even weeks that they were so tied down with children and other family activities which resulted in misplacing their receipts. 60% continue to keep track of their expenses and used it as a tool in determining their urgent needs and meeting their set goals for a particular month. 100% improved their knowledge about budgets and savings plans. 40% showed an increase in savings and are more confident about managing their money. 70% started saving 1/3 of the cash earned from selling their fish sales and vegetables harvested from their backyard garden.

c. Source of Funding: Smith-Lever

d. Scope of Impact: State Specific

Community Development

a. NMC-CREES provided guidance and assistance to more than 50 active senior citizens who have been participating every year in annual Flame Tree Arts Festival, selling their hand-made arts and crafts. CRD conducted informal short sessions on Time Management, Money Management, Proper Planning, Organization, Pricing and Product Marketing for the group.

b. As a result of the various informal short sessions, 100% of the participants appreciated the information that they could put into use. They realized the importance of goal settings and committing to them. 85% claimed to be applying the knowledge gained and are confident that they will be able to meet the consumer demand for their arts and crafts in the upcoming Annual Flame Tree Arts Festival.

c. Source of Funding: Smith-Lever

d. Scope of Impact: State Specific

Youth Development

a. NMC-CREES conducted Youth Money Management mini-workshops during FY2004. The workshops cover practical skills such as reminding youths to always count their change in front of the cashier; never purchase anything just to please a friend (buying for or buying from); to separate the reality of goods from the fantasy advertised etc. The workshops conclude with youth participants designing and making their own piggy banks. More than 111 youth participants attended the workshops on the island of Saipan.

b. One of the tasks that the youth participants finds very interesting is designing and making their own piggy banks. All of the participants were able to make their own piggy banks with completion date written on it as well as an anticipated date for them to open their piggy banks. CRD met with 5 previous participants who have graduated from high schools and are now working in the private sectors. They claimed that the Youth Money Management was a valuable lesson for them. Two of them have opened a joint checking account with one of their parent and own a joint VISA Debit Card. On the other hand, all 5 of them have their own saving account and continue to make a minimum deposit of $10.00 every month. 40% of the participants opened their piggy banks on Mother's Day and resulted with an average savings of $110.00. The length of saving time was from seven to nine months. The remaining 60% have decided to open up their piggy banks on the second weeks of December 2004. 70% have decided to use their savings to buy something special and useful for themselves. 30% will use their savings to buy Christmas gifts for friends and relatives.

c. Source of Funding: Smith-Lever

d. Scope of Impact: State Specific

Family Resource Managment

a. The Sewing Program continued to conducted various workshops and one-on-one classes during FY 2004. About 315 individuals underwent training from the islands of Tinian and Saipan. The Sewing Program on Tinian offered sewing classes as an after school activities for juniors and seniors high school students and also conducted mini session in sewing during the summer of 2004. The total number of youth participants was one hundred twenty eight (128).

b. All 315 ladies were able to sew without any assistance from their instructor after making two sets of each clothing item. Out of the 315 participants 107 signed up for Sewing Classes for Beginners. 60% completed the required projects and graduated. Because of the success in gaining the interest of clients, all participants were able to purchase their sewing machine through group and individual fundraising. 3 of the ladies sew a Christening Baby Outfit with less than $30.00 compared to the average retail selling price at $98.00. All

participants no longer need to buy pillow cases and curtains for their homes. 70% claimed to not only saved money but earned money sewing for friends and relatives. All of the participants claimed that the clothing they now sew for their family have better quality results and last longer compared to those that they bought for discounted ready-made clothing. The remaining 40% of the ladies claimed to have gained skills and knowledge and will continue to sew for their family.

c. Source of Funding: Smith-Lever

d. Scope of Impact: State Specific

Aging

a. Two hours workshops on Power of Attorney, Will, Living Wills and Legal Medical Rights of Patients were conducted on Saipan at the Office of Aging Program conference room and at some of the villages' social halls. A total of one hundred two (102) senior citizens attended the workshops.

b. All of the participants claimed to have gained knowledge and found the sessions to be interesting and beneficial. Out of the 102 participants, 40% of the participants were able to write their own Will. 90% of the participants had assigned a General Power of Attorney to one of their children to handle their banking transactions (cashing/depositing their social security checks). 5% had already written a Living Wills.

c. Source of Funding: Smith-Lever

d. Scope of Impact: State Specific

Youth Development/4-H

a. The 4-H program conducted a workshop on Goal Setting to about 75 High School Students. The workshop emphasized on setting short and long term goals, planning, organizing and time management.

b. Based on the evaluations and talking to the kids after the workshop, 75% of the student said they didn't realized what their goals were until they saw it on paper. 15% of the students didn't realize how important it was to set up a plan, a goal for themselves. Some of the student realized that being organized, and having a goal is important in planning their future, especially when they put a time frame or a deadline on what they want to accomplish when they are at a certain age.

c. Source of Funding: Smith-Lever

d. Scope of Impact: State Specific

Youth Development/4-H

a. In order to increase agriculture awareness amongst youth, the 4-H program organized a youth agricultural fair, in conjunction with the annual Saipan Agricultural Fair. 13 youth farmers participated during FY2004.

b. About 75% of last years participants returned this year to participate in the Ag Fair. 25% were new and when asked if they would come back, they said they would and will encourage other youths to participate in next years Agricultural Fair.

c. Source of Funding: Smith-Lever

d. Scope of Impact: State Specific

B. STAKEHOLDER INPUT PROCESS

NMC-CREES continues to utilize forums, conferences and periodic meetings, with stakeholders, to solicit advice and discuss ARE and FCS needs and priorities. Periodic meetings attended by NMC-CREES staff include: the monthly Tinian Soil and Water Conservation District; Saipan and Northern Islands Soil and Water Conservation; Luta (Rota) Soil and Water Conservation District; the CNMI Interagency Watershed Committee; the Head Start Health Advisory Council; the Rota Agricultural Advisory Council; Parent-Teacher Association and other school-based organizations; and the Women's Affairs Group. Other less regularly held meetings attended, which provide inputs from stakeholders on research and extension needs, include the General Farmers' Meetings, the Farmers' Association Meetings, the Sabalu Market Association and the Saipan Agriculture Fair Association quarterly meeting.

During FY2004, NMC-CREES created 2 other Advisory Councils on Saipan and Tinian, specific to our Program needs. The Councils have begun making recommendations. Future work plans and 5 Year Plan of Work shall reflect all recommendations made by the Councils on all 3 islands.

NMC-CREES held its second Retreat, inviting stakeholders to participate in focus groups and other activities that will effectively involve stakeholders in directing the next 5 Year POW. The Retreats are proven effective in gaining feedback from stakeholders and at the same time improve communication and partnership with farmers and other stakeholders.

C. PROGRAM REVIEW PROCESS

NMC-CREES continued to hold formal Merit/Peer reviews for each federally funded research and extension project proposal, prior to submission. All professional level staff members from NMC-CREES are encouraged to participate in Merit or Peer reviews. Stakeholders are also encouraged to also participate in the reviews.

The review process is carried out in three steps: First, a draft of the proposal is e-mailed to all of the NMC-CREES staff and other participants for review, suggestions and comments, well before the peer review meeting. Secondly, the draft of the proposal is revised, based on the comments and suggestions received. Lastly, the revised proposal is submitted to the Director for final review before submittal.

During the review we assess:
1) The priority or importance of the proposed project based on stakeholder input
2) The review of literature
3) The completeness of the proposal
4) The relevance of the proposal
5) The quality and scientific value of the proposed research or extension activities and
6) The opportunities for cooperation with others institutions and agencies both locally and regionally.

The proposals are revised to incorporate the suggestions given and agreed upon during the merit/peer review meeting. The Director assures that the agreed upon suggestions are made. The proposal is then submitted to the President of the Northern Marianas College for concurrence. After the concurrence of the President is received, the proposal is then submitted to the appropriate funding agency.